Patent Claims

1.   A method for reducing the crest factor of a data symbol (X) to be transmitted in a multi-carrier data transmission system, in which the data symbol (X) to be transmitted is a function of a multiplicity of signals provided within a predetermined data frame (20) and each of these signals is allocated to a carrier, each carrier occupying in each case at least one frequency from a transmit data spectrum, at least one carrier being reserved which is not provided for the data transmission and the predetermined data frame (20) exhibiting the data symbol (X) and a prefix (22) which is derived from a part of the data symbol (X), in which peak values within the prefix (22) are also taken into consideration for reducing the crest factor.

2.   The method as claimed in claim 1, characterized by the following method steps:
(a)   providing a data frame (20) with a data symbol (X) to be transmitted and a prefix (22);
(b)   filtering the data symbol (X) including the prefix (22) over the data frame (20);
(c)   checking whether the time-domain function of the data symbol (X) and of the prefix (22) within the data frame (20) exhibits at least one peak value (23), the amount of which exceeds a first threshold;
(d)   determining the amplitude of the respective peak value (23) and the associated position within the data frame (20);
(e)   generating a correction function (Y_{CF}) by scaling and transposing a sample correction function in dependence on the amplitude and position of the peak value (23);
(f)   modifying the data symbol (X) to be transmitted by superimposing, particularly by subtracting, the correction function (Y_{CF}).

3.   The method as claimed in claim 2, characterized in that method steps (c) - (f) are repeated until the data symbol (X) no longer exhibits any peak values (23) above a first threshold and/or a predetermined number of iteration steps has been reached.

4.   The method as claimed in claim 2, characterized in that method steps (b) - (f) are repeated until the data symbol (X) no longer exhibits any peak values (23) above a first threshold (24) and/or a predetermined number of iteration steps has been reached, the data symbol (X) modified by a correction function being used for the filtering in method step (b).

5.   The method as claimed in one of claims 2 to 4, characterized in that before method step (c), sampling, especially oversampling of the data symbol (X) to be transmitted is performed.

6.   The method as claimed in one of claims 2 to 5, characterized in that a dirac-like function is provided as sample correction function.

7.   The method as claimed in one of the preceding claims, characterized in that the data symbol (X) to be transmitted exhibits at least one carrier which is not available for data transmission and which is utilized for generating a sample correction function in the time domain, which, after the filtering, exhibits dirac-like characteristics for reducing the crest factor of the data symbol (X) to be transmitted.